WHAT IS CLAIMED IS:

1. A method for applying an adhesive to a wafer comprising:

providing a wafer having a surface; and

applying an instant setting adhesive composition on the surface of the wafer in a configuration wherein a plurality of portions of the surface have the instant setting adhesive composition applied thereon, and further wherein one or more zones of the surfacet are essentially free of the instant setting adhesive composition.

2. The method of claim 1 further comprising singulating the wafer to form at least one die having the instant setting adhesive composition on at least a portion thereof.

3. The method of claim 2 wherein the zones comprise singulation streets.

4. The method of claim 1 wherein the zones comprise regions having exposed bond pads.

5. The method of claim 1 wherein applying the instant setting adhesive composition to the surface of the wafer comprises a technique selected from the group of screen printing, depositing and patterning, syringe applying, stenciling, dip coating, spraying, dot shooting, and combinations thereof.

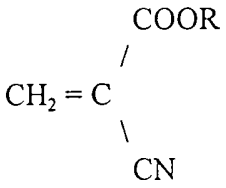
6. The method of claim 1 wherein the instant setting adhesive comprises an adhesive component selected from the group of a cyanoacrylate adhesive, an anaerobic acrylic adhesive, and mixtures thereof.

7. The method of claim 1 further comprising applying an adhesion promoter

to the surface of the wafer prior to applying the instant setting adhesive composition.

8. The method of claim 1 wherein the instant setting adhesive composition comprises at least one optional additive selected from the group of a thermal stabilizer, a thickener, a plasticizer, a toughener, a conductive filler, a dielectric additive, a moisture stabilizer, a curing inhibitor, an adhesion promoter, a storage stabilizer, a colorant, and an organic solvent.

9. The method of claim 1 wherein the instant setting adhesive composition comprises a cyanoacrylic adhesive component comprising a monomer of the formula:



wherein R is selected from the group of a C_{1-6} alkyl, a cycloalkyl, an alkenyl, an alkynyl, a cycloalkenyl, an alkaryl, an aralkyl, and an aryl group.

10. The method of claim 8 wherein R is selected from the group of a methyl group, an ethyl group, an n-propyl group, an isopropyl group, an n-butyl group, an isobutyl group, a pentyl group, a hexyl group, an allyl group, a methallyl group, a crotyl group, a propargyl group, a cyclohexyl group, a benzyl group, a phenyl group, a cresyl group, a 2-chlorobutyl group, a trifluoroethyl group, a 2-methoxyethyl group, a 3-methoxybutyl group and a 2-ethoxyethyl group.

11. A method for applying an adhesive to a wafer comprising:

providing a wafer having a surface;

applying an instant setting adhesive composition on the surface of the wafer in a

configuration wherein a plurality of portions of the surface have the instant setting adhesive composition dispensed thereon and one or more zones that are essentially free of the instant setting adhesive composition, wherein the instant setting adhesive composition has a thixotropic index from about 4 to about 6.

12. The method of claim 11 wherein applying the instant setting adhesive composition comprises one of stenciling and screen printing.

13. The method of claim 11 wherein the instant setting adhesive comprises an adhesive component selected from the group of a cyanoacrylate adhesive, an anaerobic acrylic adhesive, and mixtures thereof.

14. The method of claim 11 wherein the one or more zones include singulation streets and regions having exposed bond pads and further comprising singulating the wafer along the singulation streets to form at least one die having the instant setting adhesive coated on at least a portion thereof.

15. An instant setting adhesive composition comprising:

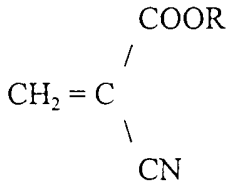
an adhesive component selected from the group of a cyanoacrylate adhesive, an anaerobic acrylic adhesive, and mixtures thereof; and

at least one optional additive selected from the group of a thermal stabilizer, a thickener, a plasticizer, a toughener, a conductive filler, a dielectric additive, a moisture stabilizer, a curing inhibitor, an adhesion promoter, a storage stabilizer, a colorant, and an organic solvent;

wherein the instant setting adhesive composition has a thixotropic index from about 4 to about 6.

16. The instant setting adhesive composition of claim 15 wherein the instant setting adhesive composition has a thermal degradation temperature of about 300°C or more.

17. The instant setting adhesive composition of claim 15 wherein the cyanoacrylic adhesive component comprises a monomer of the formula:

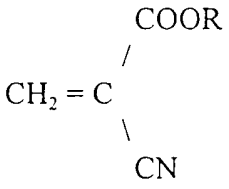


wherein R is selected from the group of a C_{1-6} alkyl, a cycloalkyl, an alkenyl, an alkynyl, a cycloalkenyl, an alkaryl, an aralkyl, and an aryl group.

18. The instant setting adhesive composition of claim 17 wherein R is selected from the group of a methyl group, an ethyl group, an n-propyl group, an isopropyl group, an n-butyl group, an isobutyl group, a pentyl group, a hexyl group, an allyl group, a methallyl group, a crotyl group, a propargyl group, a cyclohexyl group, a benzyl group, a phenyl group, a cresyl group, a 2-chlorobutyl group, a trifluoroethyl group, a 2-methoxyethyl group, a 3-methoxybutyl group and a 2-ethoxyethyl group.

19. An instant setting adhesive composition comprising:

a cyanoacrylate adhesive component comprising a monomer of the formula:



wherein R is selected from the group of a C_{1-6} alkyl, a cycloalkyl, an alkenyl, an alkynyl, a cycloalkenyl, an alkaryl, an aralkyl, and an aryl group; and

at least one optional additive selected from the group of a thermal stabilizer, a thickener, a plasticizer, a toughener, a conductive filler, a dielectric additive, a moisture stabilizer, a curing inhibitor, an adhesion promoter, a storage stabilizer, a colorant, and an organic solvent;

wherein the instant setting adhesive composition has a thixotropic index from about 4 to about 6.

20. The instant setting adhesive composition of claim 19 wherein the instant setting adhesive composition has a thermal degradation temperature of about 300°C or more.

21. The instant setting adhesive composition of claim 19 wherein R is selected from the group of a methyl group, an ethyl group, an n-propyl group, an isopropyl group, an n-butyl group, an isobutyl group, a pentyl group, a hexyl group, an allyl group, a methallyl group, a crotyl group, a propargyl group, a cyclohexyl group, a benzyl group, a phenyl group, a cresyl group, a 2-chlorobutyl group, a trifluoroethyl group, a 2-methoxyethyl group, a 3-methoxybutyl group and a 2-ethoxyethyl group.

22. A method for use in packaging a die comprising:

providing a die;

providing a leadframe; and

using an instant setting adhesive composition to attach the one or more dice to a portion of the leadframe, wherein the instant setting adhesive composition comprises an adhesive component selected from the group of a cyanoacrylate adhesive, an anaerobic acrylic adhesive, and mixtures thereof and further wherein the instant setting adhesive composition has a thixotropic index from about 4 to about 6.

23. The method of claim 22 wherein the die includes the instant setting

adhesive composition applied thereon.

24. The method of claim 22 wherein the leadframe includes the instant setting adhesive composition applied on at least a portion thereof.

25. The method of claim 24 wherein the die includes the instant setting adhesive composition applied on a back surface of the die.

26. The method of claim 25 wherein the die includes the instant setting adhesive composition applied on at least a portion of a face surface of the die.

27. The method of claim 26 wherein the face surface of the die comprises exposed die bond pads.

28. The method of claim 22 further comprising using an instant setting adhesive composition comprising a conductive filler to form a heat sink; and attaching the heat sink to a portion of the die or the leadframe.

29. The method of claim 28 wherein the method further comprises assembling a package including the die and the leadframe, wherein the heat sink is attached to the package.

30. The method of claim 22 wherein the method further comprises applying an encapsulant on portions of the die attached to the leadframe, wherein the encapsulant comprises an instant setting adhesive composition.

31. The method of claim 22 wherein the step of using the instant setting adhesive composition comprises attaching a plurality of lead fingers of the leadframe to the die,

wherein the lead fingers include the instant setting adhesive composition applied on at least a portion thereof.

32. The method of claim 22 wherein the step of using the instant setting adhesive composition comprises attaching the die to a mounting paddle, wherein the mounting paddle includes the instant setting adhesive composition applied on at least a portion thereof.

33. The method of claim 22 wherein the step of using the instant setting adhesive composition comprises using a technique selected from the group of screen printing, depositing and patterning, syringe applying, stenciling, dip coating, spraying, dot shooting, and combinations thereof to apply the instant setting adhesive composition.

34. A method for use in packaging a die comprising:

providing a die;

providing a leadframe; and

using an instant setting adhesive composition to attach the one or more dice to a portion of the leadframe under pressure and a temperature of about 200°C or less.

35. The method of claim 34 wherein the die includes the instant setting adhesive composition applied thereon.

36. The method of claim 34 wherein the leadframe includes the instant setting adhesive composition applied on at least a portion thereof.

37. The method of claim 36 wherein the die includes the instant setting adhesive composition applied on a back surface of the die.

38. The method of claim 34 wherein the die includes the instant setting adhesive composition applied on at least a portion of a face surface of the die.

39. The method of claim 38 wherein the face surface of the die comprises exposed die bond pads.

40. The method of claim 34 further comprising using an instant setting adhesive composition comprising a conductive filler to form a heat sink; and attaching the heat sink to a portion of the die or the leadframe.

41. The method of claim 40 wherein the method further comprises assembling a package including the die and the leadframe, wherein the heat sink is attached to the package.

42. The method of claim 34 wherein the method further comprises applying an encapsulant on portions of the die attached to the leadframe, wherein the encapsulant comprises an instant setting adhesive composition.

43. The method of claim 34 wherein the step of using the instant setting adhesive composition comprises attaching a plurality of lead fingers of the leadframe to the die, wherein the lead fingers include the instant setting adhesive composition applied on at least a portion thereof.

44. The method of claim 34 wherein the step of using the instant setting adhesive composition comprises attaching the die to a mounting paddle, wherein the mounting paddle includes the instant setting adhesive composition applied on at least a portion thereof.

45. The method of claim 34 wherein the step of using the instant setting

adhesive composition comprises using a technique selected from the group of screen printing, depositing and patterning, syringe applying, stenciling, dip coating, spraying, dot shooting, and combinations thereof to apply the instant setting adhesive composition.

46. A method for attaching a semiconductor die to a leadframe comprising:

providing an instant setting adhesive composition including an adhesive component selected from the group of a cyanoacrylate adhesive, an anaerobic acrylic adhesive, and mixtures thereof;

applying the instant setting adhesive composition on at least a portion of a wafer including a plurality of dice; and

singulating dice from the wafer; and

attaching a die having the instant setting adhesive composition applied on at least a portion thereof to a portion of a leadframe.

47. The method of claim 46 wherein the portion of the leadframe comprises a mounting paddle and the surface of the wafer comprises a back surface of the wafer.

48. The method of claim 46 wherein applying the instant setting adhesive composition comprises applying the instant setting adhesive composition in a pattern on the wafer, the pattern including the instant setting adhesive composition on regions of the wafer such that singulation streets and bond pads being essentially free of the instant setting adhesive composition.

49. The method of claim 46 wherein attaching the die on a portion of the leadframe comprises the steps of:

positioning a portion of the die having the instant setting adhesive composition thereon adjacent to the portion of the leadframe; and

applying pressure at an elevated temperature to attach the die to the leadframe.

50. The method of claim 49 wherein the elevated temperature is about 200°C or less.

51. The method of claim 46 wherein the portion of the leadframe comprises one or more lead fingers of a lead on chip leadframe and the surface of the wafer comprises a face surface of the wafer.

52. The method of claim 46 wherein the portion of the leadframe comprises one or more lead fingers and the surface of the wafer comprises a back surface of the wafer.

53. A method for attaching a semiconductor die to a leadframe:

dispensing an instant setting adhesive composition on the leadframe, the instant setting adhesive composition comprising an adhesive component selected from the group of a cyanoacrylate adhesive, an anaerobic acrylic adhesive, and mixtures thereof;

placing the die in contact with the instant setting adhesive composition; and

forming a bond between the die and the leadframe with the instant setting adhesive composition.

54. The method of claim 53 further comprising applying a catalyst to the leadframe, die or to the instant setting adhesive composition prior to forming the bond between the die and the leadframe.

55. The method of claim 53 wherein the leadframe includes a mounting paddle.

56. The method of claim 53 wherein the leadframe comprises a lead-on-chip leadframe.

57. A method for attaching a semiconductor die to a leadframe:

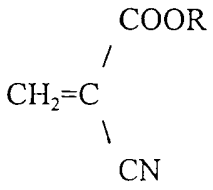
providing the leadframe with a mounting paddle;

dispensing an instant setting adhesive composition on the mounting paddle;

placing a die in contact with the instant setting adhesive composition; and

applying pressure at a temperature of about 200°C or less to bond the die to the leadframe with the instant setting adhesive composition.

58. The method of claim 57 wherein the instant setting adhesive composition comprises a cyanoacrylate adhesive component with a formula:



wherein R is selected from the group of a C_{1-6} alkyl, a cycloalkyl, an alkenyl, an alkynyl, a cycloalkenyl, an alkaryl, an aralkyl, and an aryl group.

59. The method of claim 57 wherein the dispensing step comprises a method selected from the group consisting of screen printing, depositing and patterning, syringe applying, stenciling, dip coating, spraying, dot shooting, and combinations thereof.

60. The method of claim 57 wherein dispensing the adhesive material comprises forming a pattern of dots.

61. The method of claim 57 further comprising adding at least one optional additive selected from the group of a thermal stabilizer, a thickener, a plasticizer, a toughener, a

conductive filler, a dielectric additive, a moisture stabilizer, a curing inhibitor, an adhesion promoter, a storage stabilizer, a colorant, and an organic solvent.

62. A method for attaching a lead-on-chip semiconductor die to a lead-on-chip leadframe:

providing the leadframe with a plurality of lead fingers configured to form a die mounting area;

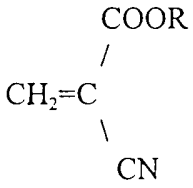
dispensing an instant setting adhesive composition on the lead fingers in the die mounting area, said adhesive material comprising an adhesive component selected from the group of a cyanoacrylate adhesive, an anaerobic acrylic adhesive, and mixtures thereof and an electrically insulating filler;

placing the die in contact with the instant setting adhesive composition; and

forming a bond between the die and the lead fingers with the instant setting adhesive composition.

63. The method of claim 62 further comprising applying a catalyst to the lead fingers, die or the instant setting adhesive composition prior to the placing step.

64. The method of claim 62 wherein the cyanoacrylate adhesive comprises a monomer with a formula:



wherein R is selected from the group of a C_{1-6} alkyl, a cycloalkyl, an alkenyl, an alkynyl, a cycloalkenyl, an alkaryl, an aralkyl, and an aryl group.

65. A semiconductor package comprising:

one or more leads;

a die including one or more die bond pads electrically connected to the one more leads; and

an adhesive layer between at least a portion of the one or more leads and the die, the adhesive layer formed from an instant setting adhesive composition.

66. The semiconductor package of claim 65 wherein the adhesive layer is between a back side of the die and the at least one portion of the one or more leads.

67. The semiconductor package of claim 65 wherein the adhesive layer is between a face side of the die and the at least one portion of the one or more leads.

68. The semiconductor package of claim 67 wherein the face of the die comprises at least one bond pad connected to the one or more leads.

69. The semiconductor package of claim 65 wherein the instant setting adhesive composition comprises an adhesive component selected from the group of a cyanoacrylate adhesive, an anaerobic acrylate adhesive, and mixtures thereof.

70. The semiconductor package of claim 65 wherein the instant setting adhesive composition includes at least one optional additive selected from the group of a thermal stabilizer, a thickener, a plasticizer, a toughener, a conductive filler, a dielectric additive, a moisture stabilizer, a curing inhibitor, an adhesion promoter, a storage stabilizer, a colorant, and an organic solvent.

71. The semiconductor package of claim 65 further comprising an encapsulant

formed over at least a portion of the leads and the die, wherein the encapsulant is formed from a composition comprising a component selected from the group of a cyanoacrylate adhesive, an anaerobic acrylate adhesive, and mixtures thereof.

72. The semiconductor package of claim 65 further comprising a heat sink attached to a portion of the die, wherein the heat sink is formed from an instant setting adhesive composition.

73. The semiconductor package of claim 65 further comprising a heat sink attached to a portion of the package, wherein the heat sink is formed from an instant setting adhesive composition.

74. A semiconductor package comprising:

a singulated portion of a leadframe including a mounting paddle and a plurality of trimmed lead fingers;

a die; and

an instant setting adhesive composition attaching the die to the mounting paddle.

75. The semiconductor package of claim 74 wherein the instant setting adhesive composition comprises an adhesive component selected from the group of a cyanoacrylate adhesive, an anaerobic adhesive, and mixtures thereof.

76. The semiconductor package of claim 74 wherein the instant setting adhesive composition includes at least one optional additive selected from the group of a thermal stabilizer, a thickener, a plasticizer, a toughener, a conductive filler, a dielectric additive, a moisture stabilizer, a curing inhibitor, an adhesion promoter, a storage stabilizer, a colorant, and an organic solvent.

77. The semiconductor package of claim 74 further comprising an encapsulant formed from a composition comprising a component selected from the group of a cyanoacrylate adhesive, an anaerobic acrylate adhesive, and mixtures thereof.

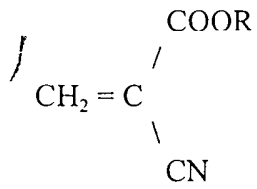
78. A semiconductor package comprising:

one or more leads;

a die including bond pads electrically connected to a portion of the one or more leads; and

an adhesive layer between at least a portion of the one or more leads and the semiconductor die, wherein the adhesive layer is formed from an instant setting adhesive composition comprising:

a cyanoacrylate adhesive component comprising a monomer of the formula:



wherein R is selected from the group of a C_{1-6} alkyl, a cycloalkyl, an alkenyl, an alkynyl, a cycloalkenyl, an alkaryl, an aralkyl, and an aryl group; and

at least one optional additive selected from the group of a thermal stabilizer, a thickener, a plasticizer, a toughener, a conductive filler, a dielectric additive, a moisture stabilizer, a curing inhibitor, an adhesion promoter, a storage stabilizer, a colorant, and an organic solvent.

79. The semiconductor package of claim 78 wherein the instant setting adhesive composition has a thixotropic index from about 4 to about 6.

80. The semiconductor package of claim 78 wherein the instant setting adhesive composition has a thermal degradation temperature of about 300°C or more.

81. The semiconductor package of claim 78 wherein R is selected from the group of a methyl group, an ethyl group, an n-propyl group, an isopropyl group, an n-butyl group, an isobutyl group, a pentyl group, a hexyl group, an allyl group, a methallyl group, a crotyl group, a propargyl group, a cyclohexyl group, a benzyl group, a phenyl group, a cresyl group, a 2-chlorobutyl group, a trifluoroethyl group, a 2-methoxyethyl group, a 3-methoxybutyl group and a 2-ethoxyethyl group.

82. The semiconductor package of claim 78 further comprising an encapsulant formed from a composition comprising a component selected from the group of a cyanoacrylate adhesive, an anaerobic acrylate adhesive, and mixtures thereof.